



CATT

Fiscal Year 2013 Report

USDA Forest Service
Southern Research Station
Center for Aquatic Technology Transfer (CATT)

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Visit our website at <http://www.srs.fs.usda.gov/catt>

Frequently Asked Questions

What is the CATT?

The Center for Aquatic Technology Transfer (CATT) is a science delivery program. CATT biologists and technicians are Southern Research Station (SRS) employees funded by the National Forest System (NFS). Our project partners are primarily NFS managers and resource specialists. Guided by core values of communication, partnership, inclusion, accountability, and safety, we collaborate with SRS scientists to develop custom solutions for our project partners.

When was the CATT created, and why?

The CATT was created in 1995 in response to the growing need for research technologies to be applied directly to management problems. The number of research personnel was, and still is, too small relative to the number of NFS managers to satisfy specific needs. Our goal is to provide an increased level of support to our NFS partners.

Where does the CATT work?

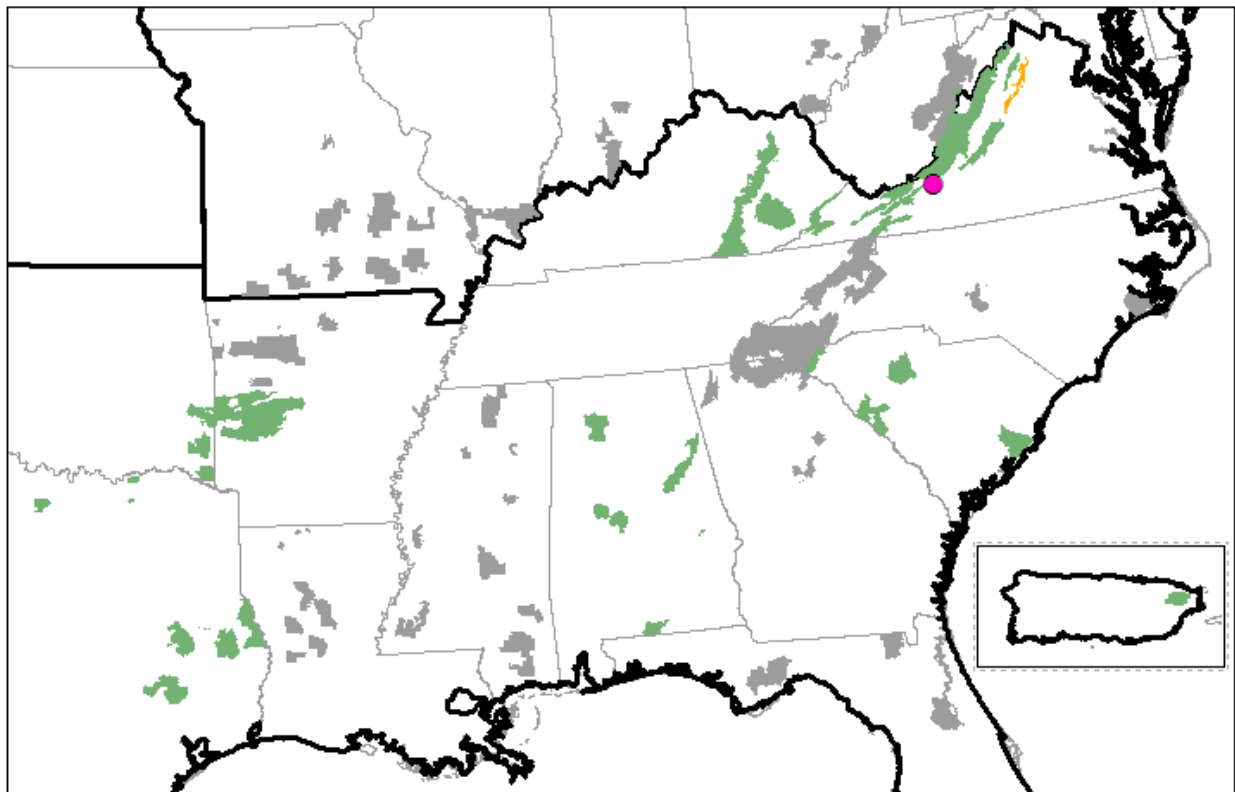
Full-time CATT personnel are stationed in Blacksburg, VA. We work mostly on NFS managed lands in the Southern and Eastern Regions. We also provide support to SRS research projects on other Federal, State, and private lands.

What services does the CATT provide?

Our focus is on aquatics related management challenges. Our flexible organizational structure allows us to rapidly develop and apply custom solutions to both short and long term projects. Past projects range from providing a field technician for an afternoon of fish sampling, to Region-wide, multi-year efforts, including sampling design, personnel management, data analysis, and reporting.

How can I find out more about the CATT?

Contact Craig Roghair 540 231-0078 (croghair@fs.fed.us), or visit our website: <http://www.srs.fs.usda.gov/catt>



Several National Forests (green) and a National Park (orange) partnered with the CATT in fiscal year 2013. The USDA Forest Service, Southern Research Station, CATT is headquartered in Blacksburg, VA (pink circle).

CATT projects in fiscal year 2013:

| Partner | Project | Date Start | Date End | CATT personnel |
|---------------------------|---------------------------------|------------|------------|----------------|
| Daniel Boone NF | Aquatic organism passage | 3/26/2012 | 11/30/2012 | 4 - 6 |
| NF in Texas | Database and GIS | 10/1/2012 | 9/30/2012 | 1 - 2 |
| Sumter NF | Mussel survey | 10/9/2012 | 10/14/2012 | 7 |
| Southern Research Station | Brook Trout population estimate | 10/23/2012 | 10/26/2012 | 7 |
| Ouachita NF | Fish data analysis | 1/29/2013 | 8/1/2013 | 1 |
| Francis Marion NF | Large wood and prescribed fire | 3/17/2013 | 3/22/2013 | 8 |
| NF in Alabama | Reservoir transition zone | 4/26/2013 | 5/2/2013 | 4 |
| Southern Research Station | Outreach - local elementary | 5/16/2013 | 5/16/2013 | 2 |
| Jefferson NF | Large wood movement | 5/31/2013 | 5/31/2013 | 6 |
| Southern Research Station | Brook Trout growth & movement | 6/3/2013 | 6/4/2013 | 8 |
| Washington Office | Brook Trout genetics | 6/12/2013 | 8/30/2013 | 5 - 8 |
| Daniel Boone NF | Effects of mining on streams | 6/17/2013 | 6/29/2013 | 5 - 6 |
| Southern Research Station | Silviculturalist training | 6/18/2013 | 6/19/2013 | 1 |
| George Washington NF | American eels | 7/15/2013 | 7/18/2013 | 8 |
| Daniel Boone NF | Forest Plan monitoring | 7/21/2013 | 7/27/2013 | 6 |
| Ouachita NF | Fisheries assistance | 9/3/2013 | 9/14/2013 | 2 |
| NF in Alabama | Reservoir transition zone | 9/16/2013 | 9/20/2013 | 5 |
| El Yunque NF | Forest Plan monitoring | 9/23/2013 | 9/27/2013 | 2 |

Daniel Boone National Forest, KY

Project: Searching for cost-effective fish passage monitoring approaches

Partners: Pam Martin, Forest Fishery Biologist, DBNF
Jon Walker, Forest Hydrologist, DBNF
Keith Nislow, Research Fishery Biologist, Northern Research Station

Dates: Mar. 26 – Nov. 30, 2012

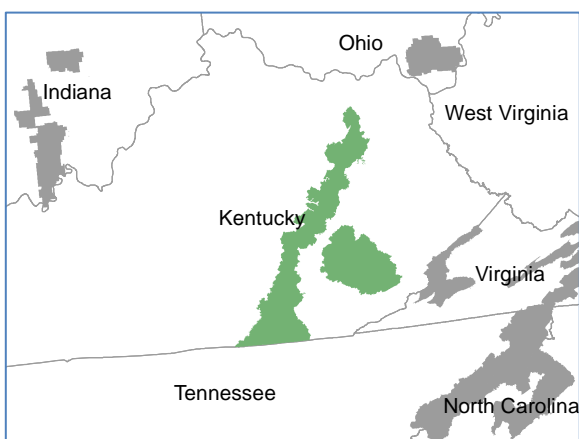
CATT Personnel: 4

Objective:

Test methods for monitoring fish passage at road-stream crossings

Summary:

There is growing interest in re-connecting fragmented fish habitat by repairing or replacing road crossing structures that impede fish passage. In 2010, a multi-agency working group began testing several methods for monitoring upstream fish passage. Between 2010 and 2012, we tested several new and existing techniques for monitoring fish passage at road-stream crossings across the DBNF. Results suggested that multiple cost-effective monitoring approaches are within our grasp. The fish passage working group will be releasing peer reviewed publications in 2013 describing the results of multiple studies, including our work on the DBNF. The publications will provide guidance to natural resource managers tasked with improving fish passage at road-stream crossings.



Daniel Boone National Forest



Capturing fish for tagging



Implanting a small tag



Antennas at crossings detect tagged fish

National Forests in Texas

Project: Database preparation

Partner: Dave Peterson, Forest Fish Biologist, NFTX

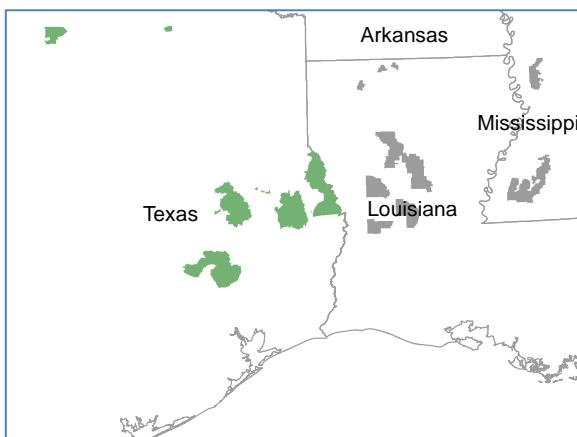
Dates: Oct 1, 2012 – Sept 30, 2013 (intermittent) **CATT Personnel:** 1 – 2

Objective:

Develop database and GIS products for storing and displaying historic data, and for accepting future data.

Summary:

National Forests often have large amounts of information stored on paper forms in filing cabinets or other difficult to access formats. The National Forests in Texas recognizes the importance of organizing its information in a more user-friendly manner. The NFTX have partnered with CATT to organize paper datasheets, thesis data, and other historic fish information into more convenient and consistent database and GIS formats. The resulting products will allow the NFTX and its partners to quickly access and summarize fish information from across the Forest.



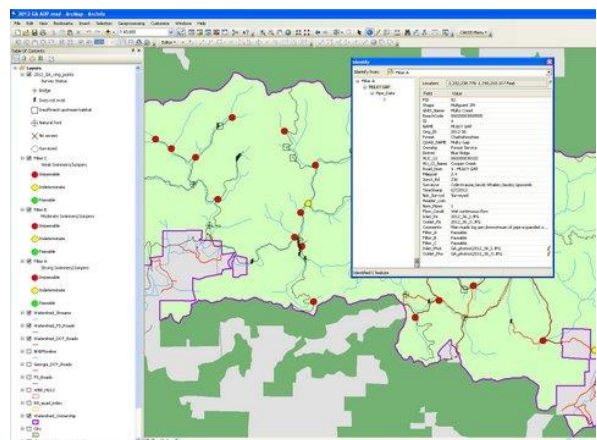
National Forests in Texas



Organizing fish information

A screenshot of a database software interface, likely Microsoft Access. It shows a table with columns for various fish-related data. The table is titled "Fish" and contains multiple rows of data. The columns include fields like "Stream", "Forest", "Species", "Date", "Length", "Weight", "Sex", "Age", "Status", "Location", "Collector", "Notes", and "Photo". The data is organized in a grid format, with each row representing a specific fish record.

Organized and accessible fish information



Visual display of fish information

Sumter National Forest, SC

Project: Mussel survey of the upper Chattooga River.

Partner: Jeanne Riley, Forest Fishery Biologist, SNF
Wendell Haag, Research Biologist, Southern Research Station

Dates: October 9 – 14, 2012

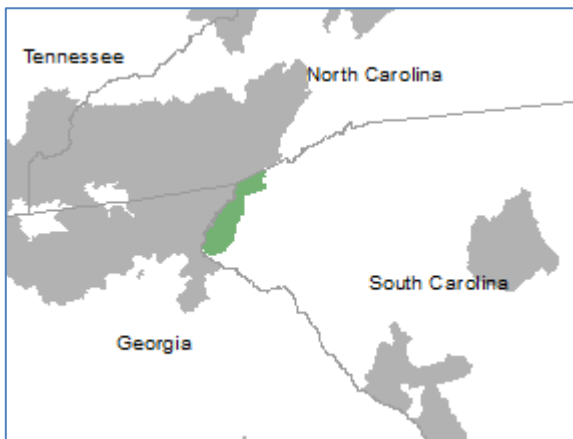
CATT Personnel: 7

Objective:

Determine distribution and abundance of several mussel species in the upper Chattooga River.

Summary:

Freshwater mussels are one of the most imperiled groups of organisms living in our rivers and streams. The upper Chattooga River is home to several mussel species, including a Region 8 Forest Sensitive Species, the brook floater. The SNF has partnered with CATT to develop a long-term monitoring plan for freshwater mussels in the upper Chattooga River. We worked with regional mussel experts and SNF personnel to develop a sampling plan and collected a baseline sample in October 2012. Future samples will allow the SNF to determine if mussel populations are stable in the upper Chattooga River.



Andrew Pickens Ranger District



The Chattooga River



Searching for mussels



Freshwater mussels

Shenandoah National Park, VA

Project: Annual brook trout population estimates in Shenandoah National Park, VA streams.

Partners: Andy Dolloff, Research Fishery Biologist, Southern Research Station
Jeb Wofford, Fishery Biologist, Shenandoah National Park

Dates: October 23 - 26, 2012

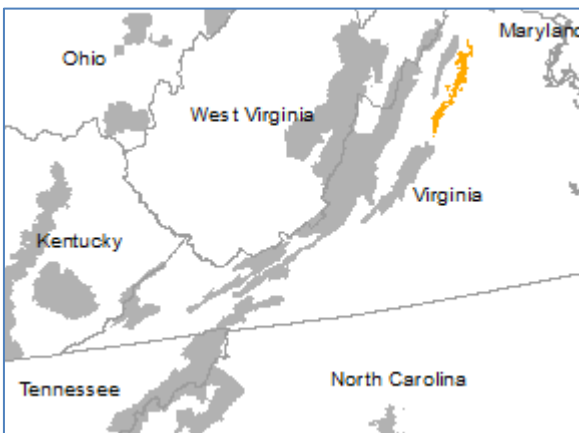
CATT Personnel: 7 - 8

Objective:

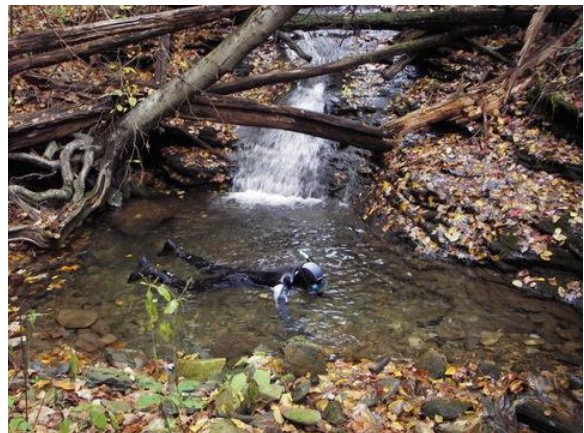
Annually estimate brook trout density in two Shenandoah National Park streams in support of a long-term research project in two acid sensitive streams.

Summary:

Long term studies allow researchers to describe trends that may not be evident in shorter studies. The Southern Research Station began annually estimating brook trout population sizes in two Shenandoah National Park streams in 1993. The CATT has provided field support for the project since 1995 and maintains the project database. Each year we use a combination of snorkeler counts and backpack electrofishing to estimate the brook trout population size. Researchers can examine for effects environmental factors such as acid precipitation, floods, droughts, and water temperature may have on brook trout population size. Understanding such effects allows resource specialists to more effectively manage brook trout populations in similar streams.



Shenandoah National Park



Snorkeling to count fish



Confirming the snorkeler's count



Brook trout

Ouachita National Forest, AR

Project: Assessing fish community diversity and biotic integrity of streams on the Ouachita National Forest

Partners: Betty Crump, Stream Ecologist, ONF
Mitzi Cole, Fishery Biologist, ONF
Alan Clingenpeel, Forest Hydrologist (retired), ONF

Dates: January 29 – August 1, 2013 (intermittent)

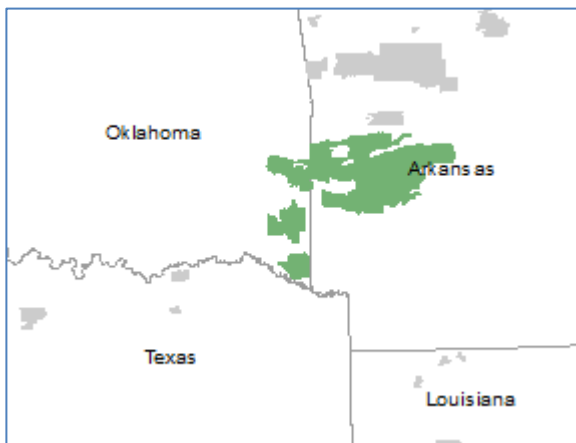
CATT Personnel: 1

Objective:

Use fish community information to assess stream health

Summary:

The Forest Service is often required to monitor stream health its recreation and management areas. A common way to monitor stream health is to sample stream fish communities. In 1990, the ONF began sampling fish communities in several streams flowing through areas with differing levels of recreation and management activity. In 2012, the ONF partnered with the CATT to interpret the results of their fish sampling. We reviewed literature and consulted with experts to find appropriate methods for interpreting fish community information. The resulting report provides comparisons among watersheds, an examination of trends within streams over time, and recommendations for refining the ONF stream monitoring program. The ONF can use similar approaches for examining additional fish community information collected from across the Forest.



Ouachita National Forest



Ouachita NF stream



Fish collected from ONF stream



Fish collected from ONF stream

Francis Marion National Forest, SC

Project: Effects of prescribed burns on large wood loads in coastal plain streams

Partner: Jeanne Riley, Forest Aquatic Biologist, FMNF

Dates: March 17 – 22, 2013

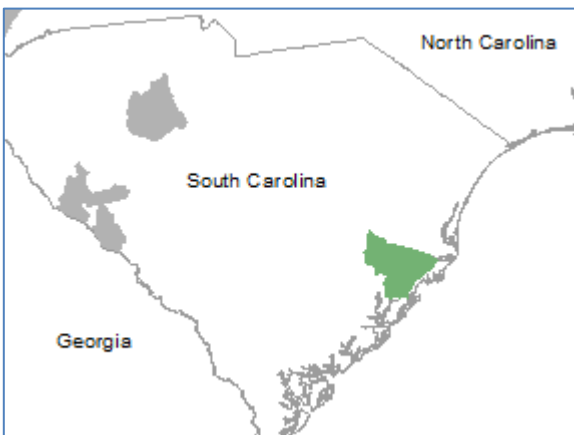
CATT Personnel: 8

Objective:

Count and classify large wood found in streams flowing through areas with differing frequency of prescribed burns

Summary:

Large wood improves the quality of stream habitat, and fishery managers often work to increase inputs of new wood and retain wood that has fallen into streams. Relatively little is known about how prescribed burns may affect the input or retention of large wood in streams. Land managers on the Francis Marion National Forest use prescribed burns as a management tool and resource specialists are interested in assessing the effects of prescribed burns on large wood. In 2013, the FMNF partnered with the CATT to inventory large wood in coastal plain streams flowing through areas with differing frequency of prescribed burns. Project results will provide information needed by the FMNF to maximize large wood input and retention in prescribed burn areas.



Francis Marion National Forest



Streamside charring after prescribed burn



Large wood charred by a prescribed burn



Measuring large wood

Bankhead National Forest, AL

Project: Investigate the effects of dam operation on fish, crayfish, and mussels upstream of a reservoir

Partners: John Moran, Forest Fishery Biologist, NFAL
Allison Cochran, District Biologist, Bankhead NF
Mel Warren, Team Leader, SRS, Oxford, MS
Stuart McGregor, Aquatic Biologist, Geological Survey of Alabama

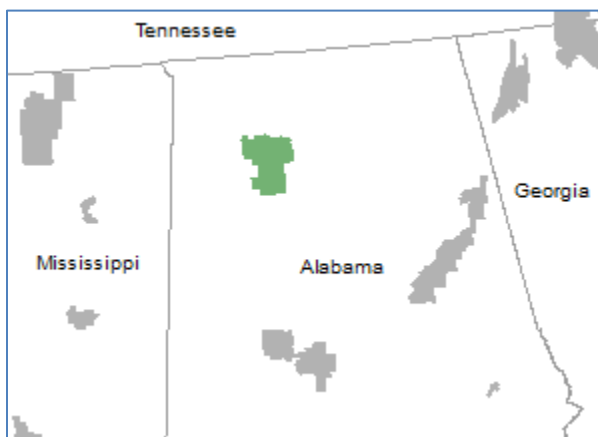
Dates: April 26 – May 2, 2013;
September 16 – 20, 2013

CATT Personnel:: 4 - 5

Objective: Sample fish, crayfish, and mussel communities during both low and high pool conditions in the transitional area upstream of Lewis Smith Reservoir

Summary:

The BNF recently reached an agreement with Alabama Power via the dam relicensing process for Lewis Smith Reservoir. Alabama Power is providing support for investigating effects of dam operation on the river transition zone upstream of the reservoir. Dam operation results in large changes in lake levels causing several miles of river within the transition zone to alternate between lake-like and stream-like conditions each year. In 2012, the BNF partnered with the CATT to begin a multi-year effort documenting the types of fish, crayfish, and mussel present during both low and high pool conditions in the transition zone. Ultimately project results will inform a plan for long-term monitoring in rivers and streams upstream of the reservoir.



Bankhead National Forest



River banks are exposed during low pool



Freshwater mussels



Collecting fish

Southern Research Station, Blacksburg, VA

Project: Youth education program

Partner: Prices Fork Elementary School, Blacksburg, VA

Dates: May 16, 2013

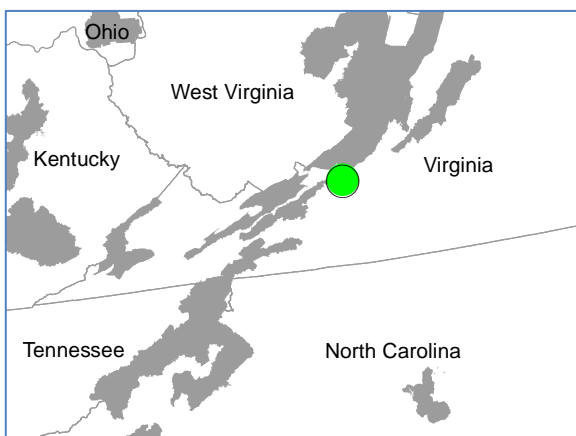
CATT Personnel: 2

Objective:

Provide opportunities for young people to interact with the nature and learn about the Forest Service

Summary:

Introducing today's youth to the natural world is an important and increasingly challenging part of our mission. Over the past several years the CATT has partnered with local daycares, grade schools, and youth programs to provide an introduction to local stream fishes and Forest Service jobs. In 2013, we visited an elementary school and introduced over 70 first grade students to a variety of fish, crayfish, turtles, salamanders, and insects collected from a local National Forest. Other recent education projects include participation in 'Come Out and Play' day on the Jefferson NF and development of a fish information poster for a local Forest Service Recreational Area. Participants gain an increased understanding and appreciation for the natural world and the Forest Service mission.



Southern Research Station Lab, Blacksburg, VA



Meeting an American eel



Future fish biologist?



Watching a CATT demonstration

Jefferson National Forest, VA

Project: Large wood movement in headwater mountain streams

Partners: Dawn Kirk, Forest Fishery Biologist, GWJNF
Andy Dolloff, Research Fishery Biologist, Southern Research Station

Dates: May 31, 2013

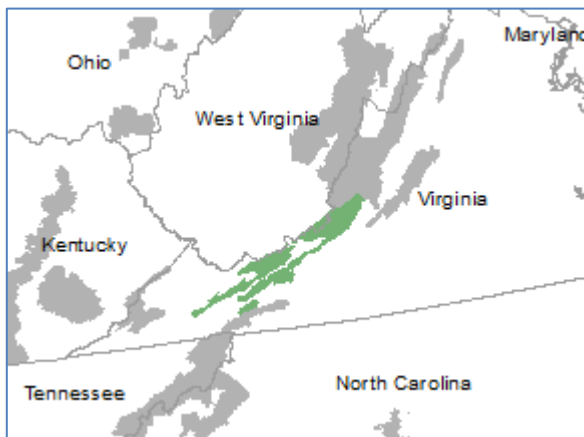
CATT Personnel: 6

Objective:

Monitor the long-term movement of large wood in headwater mountain streams

Summary:

Large wood benefits many animals living in and around streams by providing increase food and shelter. Fishery managers often try to maximize the amount of large wood in stream channels. However, large wood may also move during floods, potentially causing property damage. As a result, land managers may remove large wood to protect roads and other structures near streams. In 1993, the Southern Research Station began to study large wood movement in two mountain streams. Pieces of wood were purposely added to streams and their location was recorded. The CATT has surveyed the wood for movement each year since 1995 and maintains the project database. Project results will provide information needed to make decisions regarding large wood management in streams.



Eastern Divide Ranger District



Large wood forming pool



A log jam of large wood



Large wood decay

Shenandoah National Park, VA

Project: Annual brook trout growth and movement study in Shenandoah National Park, VA

Partners: Andy Dolloff, Research Fishery Biologist, Southern Research Station
Jeb Wofford, Fishery Biologist, Shenandoah National Park

Dates: June 3 – 4, 2013

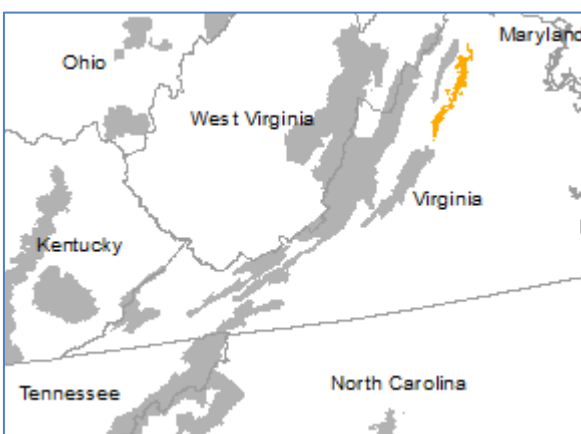
CATT Personnel: 7 - 8

Objective:

Monitor growth and movement of brook trout following a large flood and debris flow

Summary:

In 1995, a large flood and debris flow completely removed fish from the lower 1.5 miles of the Staunton River, Shenandoah National Park, VA. Since 1998, CATT has provided field support for a study designed to monitor the recovery of the brook trout population. Each summer we sample a reach that spans debris flow affected and unaffected areas of the stream. All brook trout we collect are measured, weighed, and checked for a tag number. Fish without a tag are implanted with a small internal tag that allows for individual fish identification. Tagged fish that are recaptured provide us with growth rate and movement information. The results of the study will be used to inform fish management decisions following the catastrophic loss of fish from long stream reaches.



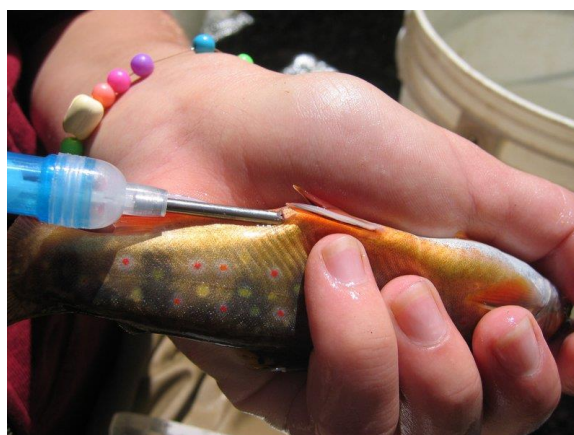
Shenandoah National Park



Collecting fish



Measuring a brook trout



Tagging a brook trout

Washington Office

Project: Assessing brook trout populations using genetic techniques

Partners: Nat Gillespie, Assistant National Fisheries Program Leader, WO
Keith Nislow, Research Fishery Biologist, Northern Research Station
Jason Coombs, University of Massachusetts
Dawn Kirk, Fishery Biologist, George Washington and Jefferson NF
Joe Williams, Virginia Department of Game and Inland Fish

Dates: June 12 – August 30, 2013 (intermittent)

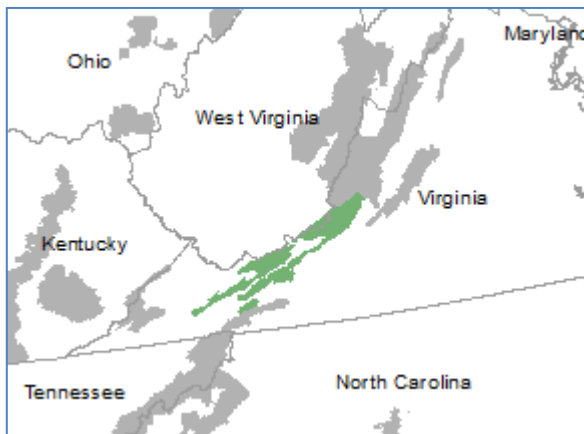
CATT Personnel: 5 – 8

Objective:

Collect fin clips from brook trout in designated southwest Virginia streams

Summary:

Brook trout require cold water, and increasing water temperatures threaten to reduce the number of streams where they can survive, particularly at the southern extent of their range. A large interagency effort is currently underway to determine how many streams will support healthy brook trout populations in the future. In support of this effort, the WO partnered with the CATT to collect small pieces of fins from young brook trout in several streams in southwest Virginia, including streams on the Jefferson National Forest. The fins will be analyzed by our project partners at the University of Massachusetts and Forest Service Northern Research Station to determine genetic diversity in the populations – the more diverse, the healthier the population. Project results will be used to help prioritize brook trout habitat preservation and restoration efforts in Virginia and elsewhere throughout the native range of brook trout.



Eastern Divide Ranger District



Capturing brook trout



Storing a small piece of fin



Young brook trout

Daniel Boone National Forest, KY

Project: Effects of mining on stream health

Partners: Jon Walker, Forest Hydrologist, DBNF
Pam Martin, Forest Fishery Biologist, DBNF
Margueritte Wilson, Remedial Project Manager, Southern Region RO

Dates: June. 17 – June 29, 2013

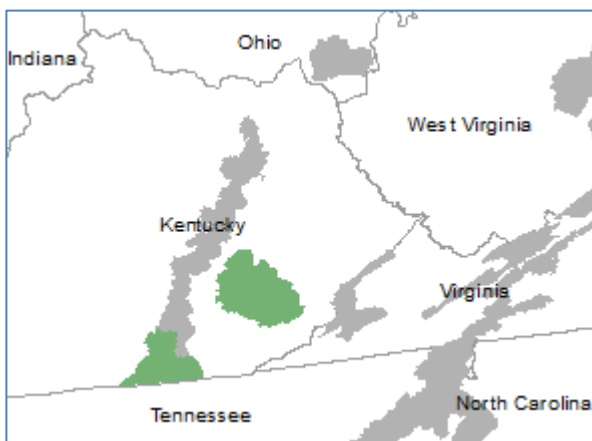
CATT Personnel: 5 - 6

Objective:

Collect fish and aquatic insects and record stream channel characteristics to examine for impacts of mine drainage on Daniel Boone NF streams

Summary:

Mining operations on and near the DBNF have the potential to impact stream health and water quality. The DBNF has identified several stream reaches downstream of mines that may be impacted by mine drainage. In 2013, the DBNF partnered with the CATT to sample stream habitat, fish, aquatic insects, and sediment in stream reaches upstream and downstream of mine drainage areas. The DBNF will use the information we collected to examine for effects of mine drainage on stream habitat and water quality.



Redbird and Stearns Ranger Districts



Hiking to a sample site



Sorting aquatic insects



A DBNF stream fish

Southern Research Station, Bent Creek Experimental Forest

Project: Provide training at National Advance Silviculture Program (NASP) Mountain Module

Partners: Julia Kirschman, Technology Transfer Specialist, Southern Research Station
Andy Dolloff, Research Fishery Biologist, Southern Research Station
Tony Crump, Regional Hydrologist, Southern Region RO

Dates: June 18 – 19, 2013

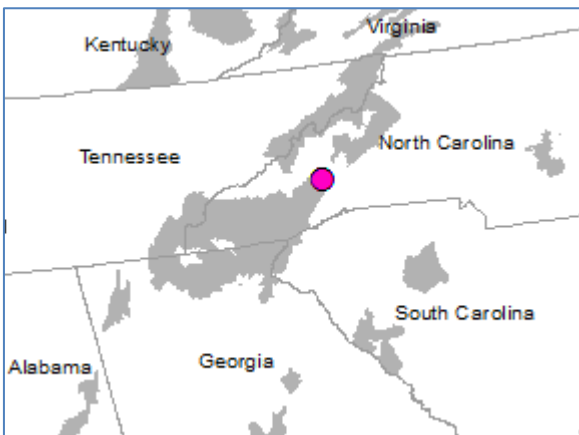
CATT Personnel: 1

Objective:

Provide basic fishery management concepts to silviculturalists at the NASP Mountain Module

Summary:

High quality National Forest management requires cooperation and understanding among specialists from multiple resource areas. NASP training provides Forest Service Silviculturalists with advanced training in their own discipline as well as exposure to guiding concepts used by other resource specialists. In 2013, the SRS requested that the CATT develop and present a basic fisheries training session for the NASP Mountain Module at the Bent Creek Experimental Forest. We presented a slide show and led the class on a field trip to a local stream where we discussed fishery management concepts. With their increased awareness of fishery issues and concepts the NASP participants will be able to develop more fully integrated forest management plans.



Bent Creek Experimental Forest



Bent Creek conference facility



Classroom session



Field trip

George Washington National Forest, VA

Project: American eels in headwater mountain streams

Partners: Andy Dolloff, Research Fishery Biologist, Southern Research Station
Dawn Kirk, Forest Fishery Biologist, GWJNF
Scott Smith, Fishery Biologist, VA Dept. Game & Inland Fisheries

Dates: July 15-18, 2013

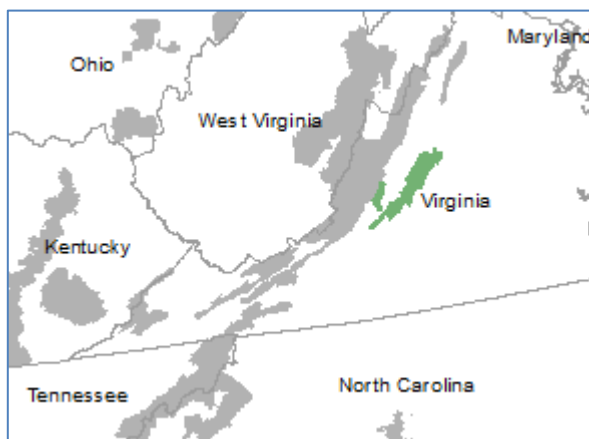
CATT Personnel: 8

Objective:

Describe growth and movement of American eels in headwater mountain streams

Summary:

Though American eels can live in streams for 20 - 30 years, little is known of their biology or behavior in headwater mountain streams. The SRS began a long-term study in 1999 to monitor the growth, movement, and longevity of eels in several GWJNF streams. The CATT has worked with SRS scientists annually since 2000 to collect and tag eels in 2 streams. In addition to providing information needed for the management of eels in headwater mountain streams, the project also provides the opportunity for outreach, attracting the attention of local newspapers, and residents. The most recent results of the study were presented by the CATT to the Virginia Chapter of the American Fisheries Society in 2013.



Glenwood/Pedlar Ranger District



Collecting American eels



Scanning an American eel for a tag number



Recording weight and length information

Daniel Boone National Forest, KY

Project: Long-term stream monitoring program

Partners: Jon Walker, Forest Hydrologist, DBNF
Pam Martin, Forest Fishery Biologist, DBNF

Dates: July 21 – July 27, 2013

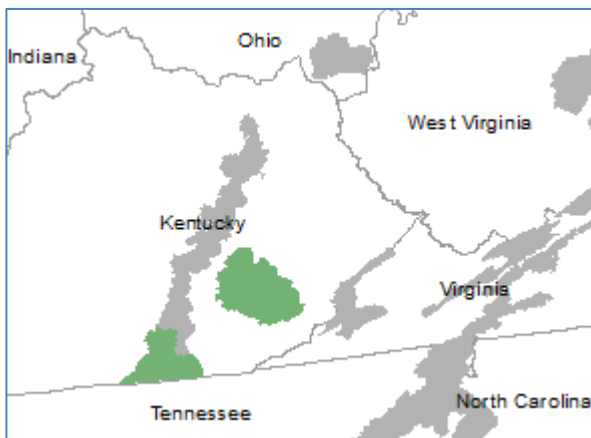
CATT Personnel:: 6

Objective:

Collect fish and aquatic insects and record stream channel characteristics in support of the Daniel Boone National Forest long-term stream monitoring program

Summary:

Long-term monitoring plans allow National Forests to detect and respond to trends in forest health. Each year the DBNF collects information on stream habitat, fish, and aquatic insects in support of its long-term stream monitoring program. Samples are collected from randomly selected locations on medium-sized streams located across the DBNF using standardized techniques. Since 2005, the DBNF has partnered with the CATT to collect its stream samples. We collect fish and aquatic insects, measure pebbles, record stream characteristics and summarize our efforts in an annual report to the DBNF. The DBNF is able to use the information to monitor for changes in stream health over time.



Redbird and Stearns Ranger Districts



Investigating a DBNF stream



Aquatic insect collection



Identifying stream fish

Ouachita National Forest, AR

Project: Fisheries assistance on the Ouachita National Forest

Partners: Betty Crump, Stream Ecologist, ONF
Mitzi Cole, Fishery Biologist, ONF

Dates: September 3 – 14, 2013

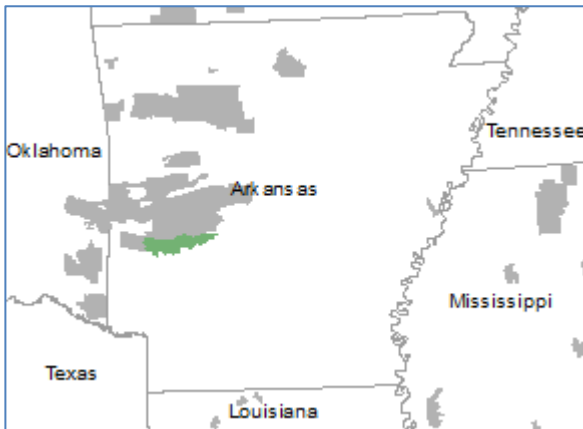
CATT Personnel: 2

Objective:

Assist ONF with several fishery related projects

Summary:

Occasionally, National Forests require a short-term increase in personnel to meet a project target or deadline. In 2013, the ONF partnered with the CATT to supplement its field crews for a variety of projects. Two CATT biological technicians collected fish community samples, searched for rare fishes, and participated in a data management project. The temporary boost in productivity allowed the ONF to meet several project targets for fiscal year 2013.



Caddo Ranger District



Fish collected from ONF stream



Fish collected from ONF stream



Fish observed in ONF stream

El Yunque National Forest, PR

Project: Long-term stream monitoring program

Partner: Felipe Cano, Forest Biologist, EYNF

Dates: September 23 – 27, 2013

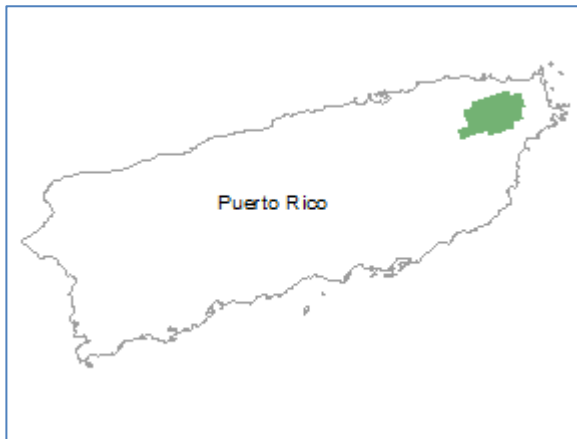
CATT Personnel: 2

Objective:

Collect fish, crabs, and shrimp in support of EYNF's long-term annual stream monitoring program

Summary:

Long-term monitoring plans allow National Forests to detect and respond to trends in forest health. Each year EYNF collects information on fish, crabs, and shrimp in support of its long-term stream monitoring program. Samples are collected from established monitoring locations on streams located across the EYNF using standardized techniques. In 2013, EYNF partnered with the CATT to collect fish, crabs, and shrimp from two streams. The Forest will use the information we collected to monitor for changes in stream health over time.



El Yunque National Forest



Testing water conductivity



Freshwater shrimp collected from EYNF stream



Fish in an EYNF stream